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Ethics and Values
in
Science and Technology

PROGRAM ANNOUNCEMENT

CLOSING DATES

FOR PRELIMINARY PROPOSALS:

JANUARY 2, MAY 1, SEPTEMBER 1

FOR FORMAL PROPOSALS:

APRIL 1, AUGUST 1, DECEMBER 1

NATIONAL SCIENCE FOUNDATION
OFFICE OF SCIENCE AND SOCIETY
WASHINGTON, D.C. 20550

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OFFICE OF SCIENCE AND SOCIETY

The National Science Foundation has established the Office of Science and Society to respond to the problems arising out of the changing relationship between the scientific and technological communities and the larger society. The general purpose of the Office is to bring about greater understanding of this relationship and to help in solving important ethical and social issues connected with science and technology.

In pursuing this purpose the Foundation seeks to respond to such questions as:

- How can the work of scientists and engineers, and the implications and consequences of their work, be clarified for the public?
- How can citizens who are not themselves scientists participate effectively in deciding issues of public policy that have important scientific and technological components?
- How and by whom are decisions made about the direction of scientific activities and the resources invested in them, and how should these decisions be made in a democratic society? Against what ethical and social standards can and should such decisions be judged?

Each of the Office of Science and Society programs approaches these questions in different ways. The primary focus of the Public Understanding of Science (PUOS) program is on improving the content and processes of communication between the scientific and the nonscientific communities. The primary focus of the Ethics and Values in Science and Technology (EVIST) program is on identifying, understanding, and helping to resolve the ethical and social dilemmas that arise in the work of scientists and engineers and in their interaction with citizens affected by their work. The primary purpose of the Science for Citizens (SFC) program is to increase the knowledgeable participation of both scientists and nonscientists in the resolution of major public issues involving science and technology.

For further information about these programs, write to:

Office of Science and Society
National Science Foundation
Washington, D.C. 20550

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ETHICS AND VALUES IN SCIENCE AND TECHNOLOGY

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I. PROGRAM DESCRIPTION

A. INTRODUCTION

The central concern of the Ethics and Values in Science and Technology (EVIST) Program is with the ethical rules and social standards that govern the conduct of scientific and technological activities, including the selection of research priorities and the application of research results. These concerns extend from issues associated with the conduct of individual scientists and engineers and their professional organizations and institutions, to those arising out of the more general interactions of science, technology and society. Thus the program's primary objective is to support projects that seek to explore, analyze and help to resolve questions such as:

- What obligations and constraints are or should be associated with the work of scientists and the work of engineers?
- What are the appropriate limits of social accountability and freedom of inquiry as they affect scientific and technological activities?
- What ethical problems and value conflicts are associated with new developments in science, with new developments in technology, and with new uses of scientific information? How might these problems and conflicts be resolved?
- What ethical problems and value conflicts are inherent in changing social standards, regulations and expectations that affect science and technology?
- Against what ethical and social standards can and should decisions about research priorities and applications be judged?
- How can the ability of scientists and engineers to recognize and deal with ethical problems associated with their work be enhanced?
- To what extent can and should the ethical perceptions and social values of nonscientists be incorporated into decisionmaking processes involving science and technology?

The goal of the program is to support projects that will make a significant contribution to refining and enlarging the professional and public debate on these questions. Accordingly, highest priority is assigned to projects that deal with issues of demonstrable importance to nonspecialists in science and ethics and that include a well developed plan for disseminating their results to as broad a range of concerned individuals and groups as possible.

All projects supported by the EVIST Program must have both significant scientific or technological content and significant ethical or value content. They should clearly delineate the ethical or value problems involved and deal with them in as complete and as rigorous a manner as possible.

The program does not normally support projects to assess the social, political or economic effects of new technologies *unless* the primary objective of those projects is to explore ethical issues in the conduct of scientists or engineers, or the value dimensions of the decision processes which led to those effects. Nor does the program support projects whose principal aim is to clarify ethical theory as it applies to science and technology unless their results are accessible and likely to be of substantial interest to persons outside the formal discipline of ethics.

B. PROGRAM CATEGORIES

The five substantive categories that follow will serve to suggest the range of issues of concern to the EVIST Program. Summary descriptions in Appendix A provide specific examples of projects that have been supported by the program in each category. These categories overlap each other, and they are not intended to be exclusive. The program is also open to proposals that do not fit neatly into any of the categories, provided they are consistent with the general guidelines outlined in Section I-A.

1. *Issues in the education and professional conduct of scientists and engineers.*

The sensitivity of scientists and engineers to the ethical problems encountered in their work, as well as their ability to deal with those problems, are conditioned by the professional education they receive. Although the program does not presently accept proposals for course and curriculum development (see Section I-C), it does support projects of national scope whose objectives are to incorporate significant ethical and value components into the professional education, both formal and informal, of scientists and engineers; to sensitize working scientists and engineers to the ethical implications of their work; and to enhance their ability to deal with those implications.

2. *Issues of obligations and constraints associated with institutions and organizations.*

The response of scientists and engineers to ethical dilemmas encountered in their professional work is also conditioned by explicit and implicit rules established by the institutions in which they work and the organizations that support and encourage their professional activities. Many of these rules, as well as the rules governing the conduct of scientific institutions themselves, have been established by regulatory actions of governments at the Federal, State and local level. Others derive from the specific character of the institutions themselves or from longstanding traditions of the scientific community or the larger society.

The EVIST Program supports projects to consider and analyze individual and institutional responsibility and accountability. Such projects might include, for example:

- Studies of the ethical conflicts experienced by scientists and engineers working in different institutional settings;
- Studies of the efficacy of formalized codes of conduct and of the traditional scientific ethos in guiding the conduct of scientists and engineers;
- Studies of the roles played by different types of scientific institutions and organizations (as well as those they might play) in conditioning the ethical perceptions and responses of individual scientists and engineers.

They could also include:

- Projects intended to develop effective and equitable means of dealing with "whistle blowers" and their claims;
- Analyses of the effects of formal government regulations on the ethical conduct of scientists and engineers and on scientific institutions, as well as ethical and value issues associated with government regulations themselves.

3. *Issues associated with new developments in science and technology.*

New directions in basic and applied research and the application of scientific and technical knowledge to new types of problems may affect both the conduct of science and technology and the character of the interactions between science, technology and society. Novel ethical problems may arise and the nature and intensity of existing problems may be altered by the introduction of new types of information and new participants into the relationships of scientists and nonscientists.

For example:

- Advances in recombinant DNA research raise in new forms many ethical problems concerning limits on freedom of inquiry.
- The large scale deployment of nuclear reactors and the consequent need to dispose of the radioactive wastes they generate raise questions of equity with respect to future generations.
- Large and uncertain risks associated with hazardous technologies may heighten the ethical dilemmas of potential "whistle blowers."
- The feasibility of making significant modifications in the weather heightens the ethical dilemmas associated with decisionmaking processes in the applications of technology.
- The possibility of detecting and predicting genetic defects in unborn children raises ethical questions about legitimate social responses.

The EVIST Program supports projects to delineate and analyze ethical issues of this kind, arising as a result of new developments in science and technology. It also supports projects to explore associated value conflicts and their implications, including conflicts that arise from differing assessments of risks and benefits to the public. Such projects may aim to develop and test mechanisms to explicate and resolve value conflicts. All of them should have the potential to enlarge and refine the discussion of the substantive issues that are addressed.

The program does *not* support social impact studies or technology assessments, unless they are focused on issues related to the conduct of scientists or engineers or scientific and technical organizations and institutions.

4. *Effects of changing ethical and social values and expectations upon scientific priorities and upon the conduct of scientific and technological activities.*

Since scientific and technological activities occur within a larger social context, they are inevitably conditioned by changing external standards and expectations. Thus, for example:

- Developing public interest in environmental ethics has encouraged both a renewed interest in basic research in ecology on the part of biologists, and a changing perceptions of their social responsibility.
- The debate over the implementation of nuclear technologies has changed considerably during the past decade due in large measure to changing social evaluations of probable risks and benefits.
- The relative value of scientific research itself vis-a-vis other social priorities is also being debated by significant sectors of the scientific and nonscientific public.

These debates have led to proposals for mechanisms to limit, regulate or otherwise direct scientific research.

EVIST-supported projects in this category might include, for example:

- Studies of the origin and character of changing ethical standards and social expectations and their consequences for scientific and technological activity, and of the reciprocal effects of science and technology on such standards and expectations.
- Analyses of the ethical problems and value conflicts inherent in actual or proposed mechanisms to assess, limit, regulate or otherwise direct scientific and technological activity, including analyses of the implicit and explicit ethical presuppositions of scientific and nonscientific groups associated with such proposals.
- Analyses of the effects of various social control mechanisms on the conduct of science and technology, including studies of mechanisms operating exclusively within the scientific community as well as governmental and nongovernmental mechanisms external to that community.

5. *Ethical issues and value assumptions in decisionmaking processes involving science and technology.*

Scientific and technological information is used increasingly in the formulation of public policies. Individual scientists and engineers are called upon as experts both in policy formulation processes and in policy disputes. There is also a growing interest in how public policies that involve and affect science and technology should themselves be formulated: Who makes or should make those policies? How are or should they be made?

The EVIST Program supports studies of the problems that arise when scientific and technical expertise is used to formulate public policies or to adjudicate policy disputes. It does *not* support research and analysis directed at the determination of appropriate public policies, unless the specific focus is on ethical and value issues associated with those policies.

Projects appropriate for EVIST might include, for example:

- Analyses of ethical problems in the use of scientific information and expertise *per se*.
- Studies of ethical issues arising from the incorporation of incomplete or uncertain scientific data into formal tools of analysis like benefit-cost analysis and technology assessment, as well as ethical issues inherent in the use of such formal tools in the first place.

- Studies of the values associated with the use of alternative mechanisms for the formulation of policies involving science and technology, and projects whose aim is to introduce new ethical and value perspectives into the formulation of those policies.
- Studies to determine how policy analysis methodologies can be developed to incorporate alternative social values.
- Projects to assess the values implicit in public participation strategies and public interest science activities as they affect the conduct of science and technology and the interactions of science, technology and society.

C. MODES OF ACTIVITY

The EVIST Program supports projects that have significant representation from disciplines supported by other Foundation programs, including the natural and social sciences, engineering, and the history and philosophy of science. Project participants should include persons competent to deal with all the substantive and value isses addressed by the project. Where appropriate, representatives of the major professional and social groups affected by and affecting the problem, issues, or conflict under consideration should be included in all aspects of the project, including its planning phases.

Proposals for projects dealing with value issues arising in the context of clinical medicine are welcomed, provided they are of the interest to, and include the substantial participation of, natural scientists, social scientists, or engineers.

Proposals involving the collaboration of humanists with natural scientists, social scientists and engineers may be considered for joint support with the National Endowment for the Humanities, as indicated in Section I-D.

EVIST projects may be carried out by several types of activities, including the following:

- Disciplinary and multidisciplinary research (including case studies) on specific situations in which ethical and value issues have arisen in association with the conduct of science and technology. Historically-oriented projects that illuminate issues of current or continuing interest will be considered by the program, provided they focus on substantive ethical or value issues.
- Workshops of national scope to examine professional responsiblities associated with scientific and technological activities and to develop mechanisms for confronting the value issues that may arise in the exercise of those responsibilities. Special events held in conjunction with regular meetings of scientific and professional societies and other groups will also be eligible for support.
- Conferences and workshops to explore the value conflicts associated with particularly significant policy issues in which science and technology play an important part and to develop research and action agendas for enlarging and refining the public debates over those issues.
- Experimental workshops and other types of projects for increasing effective and knowledgeable public participation in assessing the value dimensions of specific policy decisions with scientific and technological components.
- Projects of national scope that enable scientists and engineers to enhance their ability to deal with the ethical and social isues associated with their fields of activity, including research and teaching.
- Colloquia and other experimental activities, also national in scope, addressing the integration of EVIST issues into the professional education of scientists and engineers.
- Projects to lay a foundation for significant future work related to EVIST objectives, including the compilation of archival materials and bibliographies of existing resources, and the preparation of compendia, rviews and similar publications on specific topics relating to ethical and value issues associated with science and technology.

These modes are not exclusive; projects often combine several of them to ensure that EVIST priorities will be satisfied. It is particularly important that projects give promise of results that will be of demonstrable importance to both specialists and nonspecialists, and that persons with a similarly broad range of perspectives be involved in planning and carrying out the projects.

Proposals for cross-cultural and international studies are assigned a high priority only if their results are likely to illuminate issues of concern to professional and lay audiences in the United States. Proposals involving international collaboration that provide evidence of probable partial support from non-U.S. sources will be considered more favorably than those requiring complete support from the Foundation. Proposals for local or regional workshops will generally be given a low priority unless evidence is presented of their potential national impact.

Proposals limited to the development of courses or of curriculum materials at the pre-college, college, graduate or professional levels are ineligible for support by the EVIST program; however, they may be referred to the Science Education Development and Research Division (SEDR) of NSF.

The EVIST Program is not presently accepting proposals for projects focusing on ethical issues associated with new military technologies and national defense strategies, or for projects requiring the use of classified materials. No support will be given for projects whose primary objective is to promulgate a specific dogma or to "market" predetermined ideas or products. It should also be noted that the program provides support only for specific projects, as opposed to general support for programs or organizations, and that project support is normally limited to 30 months.

D. INTERPROGRAM SUPPORT

Certain proposals may be considered for joint support by the EVIST Program and one or more other programs within the Foundation or in other Federal agencies. In particular, the National Science Foundation and the National Endowment for the Humanities have established procedures that permit them to work in close collaboration. Parallel advisory committees of persons with distinguished backgrounds in science, humanities, and public affairs have been established to provide policy guidance, and a staff member at each agency has been designated to act as liaison officer. Through coordination between the two agencies, proposals may be referred from one to the other as suggested by the subject matter, methodology, and primary disciplines involved. In appropriate instances, there may be joint funding of approved proposals. Inquiries to NEH should be directed to:

Program of Science, Technology
and Human Values
Office of Planning
National Endowment for the Humanities
Washington, D.C. 20506

II. PREPARATION AND SUBMISSION OF PROPOSALS

A. WHO MAY SUBMIT

Proposals may be submitted by colleges, universities, laboratories, industrial firms, citizen groups, State and local governments, professional associations, and other profit and nonprofit organizations. Proposals from individuals acting independently of institutional sponsorship will be considered only under exceptional circustances.

B. PRELIMINARY PROPOSALS

Preliminary proposals enable the staff to determine whether a project has relevance to the program's objectives and to provide appropriate assistance to the applicant in the preparation of a formal proposal. No formal proposal will be accepted by the program unless a prior preliminary proposal has been reviewed by the EVIST staff.

Closing dates for the receipt of preliminary proposals are January 2, May 1, and September 1. Preliminary proposals may be submitted at any time, and will be evaluated by the EVIST Program staff within four to six weeks after their receipt. However, the staff cannot guarantee that those received after a particular closing date will be evaluated in time to permit the preparation and submission of formal proposals prior to the subsequent deadline for those proposals.

A preliminary proposal is regarded as an informal communicaton between the prospective applicant and the EVIST Program staff, and need not adhere to any specific format. However, each preliminary proposal should include a cover sheet giving the name, institutional address and telephone number of the applicant, the title of the proposed project, and its total cost. Preliminary proposals need not be officially endorsed by the head or authorized representative of the applicant's institution.

The body of a preliminary proposal (excluding cover page and budget sheets) should be no longer than five pages, double spaced, and should treat each of the following points:

1. Statement of problem or need for project
2. Research or organizational design, including time schedule
3. Anticipated results and impact of project, including plans for evaluation and dissemination
4. Project duration (not to exceed 30 months)
5. Qualifications of professional project staff
6. If the project involves forums or workshops: selection criteria for speakers, participants, and topics
7. Tentative budget, including indirect costs where applicable.

Two copies of each preliminary proposal should be sent *directly* to:

Ethics and Values in Science and Technology
Office of Science and Society
National Science Foundation
Washington, D.C. 20550

A self-addressed postcard included with the proposal will facilitate acknowledgement of its receipt.

C. FORMAL PROPOSALS

A formal proposal must consist of the following items assembled in the order shown:

1. Cover Sheet

   A completed cover sheet (Appendix C) should be used as the first page of each submitted copy of the proposal. Each formal proposal should be signed by the proposed project director as well as the head or authorized representative of the prospective grantee institution.

   Social Security numbers are used by the Foundation to monitor and facilitate the receipt and processing of numerous proposals, as well as to maintain award data. The number is solicited pursuant to the general authority of the Foundation under the NSF Act of 1950, as amended. However, submission of Social Security account numbers is voluntary and refusal to disclose a number will not affect an institution's eligibility for award.

   The starting date of the project should take into account the time required for processing the proposal by the Foundation, as well as the availability of project staff, and should not normally be scheduled earlier than six months after the submission of a formal proposal.

2. Table of Contents

3. Project Summary (not to exceed 350 words)

   The project summary should be an intelligible, self-contained condensation of the narrative. It should contain a minimum of technical terminology and include a statement of objectives, an outline of project operations, and a description of anticipated outcomes. In the case of a continuing project, the project summary should summarize work completed as well as describe work to be accomplished under the new proposal.

4. Narrative

   The narrative section should normally not exceed twelve (12) pages, double spaced. Applicants are advised to consult the Proposal Review Criteria (Appendix B) in preparing this section.

   The narrative should include discussion of the following:

   a. Project and Program Objectives: State the goals and anticipated outcomes of the project, and in what ways they satisfy EVIST objectives.
   b. Project Design: Explain the methods to be used and describe the activities to be undertaken. An analysis should be provided of the current state of knowledge or performance with respect to the issues addressed by the proposal. References to the literature should be provided where appropriate, though extensive bibliographies should be relegated to an appendix. Scientific, ethical and educational aspects of the project should be considered. If the proposal is for continuation of a previous grant, summarize what has been done to date and describe what is to be accomplished under the continuation award.
   c. Evaluation Plan: Include a plan which specifies procedures for monitoring the

progress and assessing the outcomes of the activity.

d. Organization and Management Plan: Describe the administrative mechanisms that will be used to organize and manage the project, including any subcontract or consultant arrangements.

e. Utilization: Explain how the products or outcomes of the award will be used or disseminated, and to what specific audiences they will be addressed.

Each proposal must also list all current research, in addition to the proposed project, to which the principal investigator(s) and other senior research personnel have committed a portion of their time, whether or not salary for the person involved is included in the budgets of the various projects. This information should include the titles and dates of current grants or contracts, the source of funds, annual budget levels, and the person-months devoted to each project by each of the senior personnel. The proposal must also provide analogous information for *all* other *proposed* research which is being considered by, or which will be submitted in the near future to, other possible sponsors including other Foundation programs. Concurrent submission of a proposal to other organizations will not prejudice its review by the Foundation.

5. Work Plan

The work plan should summarize, in a table or diagram, the scheduling of project tasks and milestones, including estimates of funds, time, personnel, facilities, and equipment allocated to each stage of the project. Progress and other reports, advisory committee meetings, and similar events should be included.

6. Budget

A budget should be prepared and submitted on Form 1030 provided in Appendix D. See Important Notice 57 (Appendix E) for a clarification of the salary disclosure option. Unusual items should be fully explained or justified as budget notes.

Listed costs of the various items should be known costs insofar as possible; estimates should be given only when it is impossible to ascertain actual costs. Nonspecific items grouped as "miscellaneous" or "contingency funds" should not be included. The budget should not include items for expenses incurred before the date of the award, such as staff time required to prepare the proposal or to make initial preparations for a conference. If funds from other sources are to be used, an itemized budget for the expenditures of these funds should be provided as a supplement to that budget which the Foundation is requested to support.

Budgets should specifically list, as separately numbered items, any permanent equipment that will cost $1,000 or more. Estimated air fares should not normally exceed round-trip jet economy class. Subcontracts should be listed under "All Other Direct Costs" and described on a separate budget form. The subcontract budget should be approved and signed by the proposed subcontractor, which should indicate their acceptance to perform the work described in the proposal.

The proposing institution is entitled to indirect costs at the rate approved for that institution, which can be obtained from its business office, or from the NSF Division of Grants and Contracts, Policy and Cost Analysis Branch. Budgets for unsolicited research proposals should contain a statement that the institution will share costs in accordance with NSF policies.

7. Fiscal Discussion

The budget should reflect the narrative portion of the proposal and vice versa. However, addditional pages should be added as necessary to provide explanations of budget items.

8. Personnel Descriptions

A curriculum vita should be presented for each professional person of any significance to the project (whether actually receiving support or not). Each vita should contain the following information: name, degrees (subject, institution, and date), professional experience (activity, institution, and date), and evidence of relevant achievement (recent publications, papers, etc.)

The Foundation considers the academic, professional, scientific, and administrative competence of principal investigators to be of particular significance to the likelihood of project success. It is expected that this position will, in general, be occupied by experienced professionals of demonstrated administrative ability, and that they will be directly involved in project activities to a significant degree.

9. Appendixes

The narrative should provide sufficient information so that an intelligent reviewer, however unfamiliar with the local context, can arrive at valid judgments concerning the project. Additional supportive material may be included as appendixes, but is not subject to evaluation by reviewers.

D. CLOSING DATES

The Ethics and Values in Science and Technology Program will review three series of formal proposals each year. Closing dates for the receipt of *preliminary* proposals are January 2, May 1 and September 1. Closing dates for the receipt of *formal* proposals are April 1, August 1 and December 1. The effective starting dates of grants should be set no earlier than six months after the submission date of the formal proposal, and every effort will be made to announce decisions on the funding of proposals within that time.

E. SUBMISSION OF PROPOSALS

Twenty copies of the formal proposal should be prepared by the prospective principal investigator of the project and submitted to the Central Processing Section of the Foundation by the proposing institution. The original, signed cover sheet comprises the letter of transmittal and the first page of the proposal. Each copy should be on standard (8½x11) paper, stapled in the upper left corner, but unbound. Pages should be numbered at bottom center. The copies should be submitted securely bound in a single package to:

Central Processing Section
Ethics and Values in Science and Technology
National Science Foundation
Washington, D.C. 20550

To facilitate prompt acknowledgement of the arrival of the package at the Foundation, the proposer should cut out two postcards from the back cover of this Guide, fill them in to identify the proposal, address one card to the principal investigator and the other to the official authorized to sign the Cover Sheet, and attach them firmly to the Cover Sheet of the Signature Copy. When the package arrives, the date of receipt and an assigned Proposal Number will be stamped on the card before it is returned, so that thereafter the proposer and the Foundation may refer to this Proposal Number in correspondence about the proposal. If receipt is not acknowledged within two weeks of submission, the program staff should be contacted promptly.

A separate information copy of the proposal should also be sent directly to:

Ethics and Values in Science and Technology
Office of Science and Society
National Science Foundation
Washington, D.C. 20550

F. EVALUATION OF PROPOSALS AND NOTIFICATION OF FINAL ACTION

Preliminary proposals are reviewed and evaluated by program and other Foundation staff, as appropriate. Comments are provided to applicants four to six weeks following the receipt of their preliminary proposals by the Program.

Formal proposals are evaluated by an interdisciplinary review panel consisting of experts drawn from colleges, universities, research organizations, professional societies and public interest groups. At the discretion of the EVIST Program staff, a proposal may also be sent out for additional reviews from persons with specific expertise in one or more of the substantive areas of the proposal. See Appendix B for EVIST proposal criteria. These are made available to all panelists and reviewers.

III. OTHER CONSIDERATIONS IN SUBMITTING PROPOSALS

A. ASSURANCE OF COMPLIANCE WITH CIVIL RIGHTS ACT

If the applicant institution has not filed an Assurance of Compliance with Title VI of the Civil Rights Act of 1964 as required by NSF regulations, pertinent forms and a copy of the regulations may be obtained by writing to the Foundation's Division of Grants and Contracts. The required Assurance Form, when completed by the institution, should be submitted to the Division of Grants and Contracts. Once an Assurance Form has been submitted by the applicant organization, it covers all propoals subsequently submitted by any department or other unit of that organization. Individual Assurance Forms are not necessary for each application or for each proposal. If there is some question as to whether an institution has filed an Assurance of Compliance, the institution's business office should be consulted.

B. HUMAN SUBJECTS

1. The grantee is responsible for safeguarding the rights and welfare of any human subject involved in research, development, and related activities supported by the grant. The grantee may conduct research involving human subjects only as described in the grant proposal and as approved by the grantee's Institutional Review Committee. Prior to conducting such research, the grantee shall obtain and document a legally effective informed consent from each human subject involved. No such informed consent shall include any exculpatory language through which the subject is made to waive, or to appear to waive, any of his or her legal rights, including any release of the grantee or its agents from liability for negligence.
2. The grantee agrees to comply with the DHEW regulations regarding the use of human subjects, appearing in Title 45 Code of Federal Regulations, Part 46, Subtitle A. (See DHEW Publication No. (NIH) 72-102 for additional guidance.)

C. GRANTEE ORGANIZATION AND MANAGEMENT DATA

Any prospective grantee organization that has not received an NSF grant within the past 2 years should fill out the Organization Management Information card on the back of the brochure and attach it to the original copy of the proposal.

D. ACCESS TO PEER REVIEW INFORMATION

After final decisions have been announced, the Foundation will, upon request, inform the project director of the reasons for its decisions on a proposal. Verbatim copies of reviews, not including the identity of the reviewer, will be made available to project directors upon specific request.

E. CONFIDENTIAL ASPECTS OF PROPOSALS AND AWARDS

When a proposal results in an award, it becomes part of the record of the Foundation's transactions, available to the public upon specific request. Information that the Foundation and the grantee mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law; therefore, an applicant who wishes to have the Foundation consider any information as privileged should clearly mark it as such and send it in a separate statement, two copies of which should accompany the proposal.

A proposal that does not result in an award may be retained by the Foundation. Such a proposal will be released only (1) with the consent of the proposer or (2) to the extent required by law. A proposal may be withdrawn at any time prior to final action thereon by the Foundation.

F. NSF EVALUATION OF PROJECTS

Proposers should be aware that the Foundation may, as part of its own program evaluation activities, carry out in-depth evaluations of selected awarded projects through independent third parties. Thus, proposers should be prepared to cooperate with evaluators eventually retained by the Foundation to analyze both the institutional context and the impact of any supported project.

G. CONTRACTING OR TRANSFERRING THE PROJECT EFFORT

Excluding the purchase of commercially available supplies, materials, equipment, or general support services allowable under the grant, none of the research or substantive effort under an NSF grant may be contracted or otherwise transferred to another organization without prior NSF approval. Normally, the intent to so contract is fully disclosed in the proposal submission, and evidence of NSF prior approval appears in the grant instrument. In the event the need arises to so contract after a grant has been made, the grantee must submit the proposed arrangment to the NSF Grants Officer. The request must be signed by the principal investigator and endorsed by the authorized organizational representative. NSF approval will be indicated by an amendment to the grant.

H. CONSULTANT SERVICES

1. Grantees normally are expected to utilize the services of their own officers or employees to the maximum extent in managing and performing the activities supported by NSF grants. Where it is necessary for a grantee to contract for the services of persons who are not its officers or employees, it is expected to do so in accordance with written organizational standards which provide for consideration of the factors outlined in the governing Federal cost principles.
2. If the need for consultant services is anticipated, the proposal narrative should provide appropriate rationale, and the Proposal Budget should estimate the amount of funds which may be required for this purpose. To the extent possible, consultant rates should show separate amounts for actual services and each of the components of the rate. However, payment for a consultant's services may not exceed the daily equivalent of the maximum rate paid a U.S. Government GS-18 ($183/day) unless specifically authorized by law.

IV. PROJECT AND AWARD MANAGEMENT

A. GRANT ADMINISTRATION

An NSF grant is normally made to an organization, known as the grantee, rather than to the individual principal investigator or project director who proposed to conduct the project. Notification of an award is made by a letter signed by the NSF Grants Officer which constitutes the award instrument. The grant establishes a relationship between NSF and the grantee in which:

1. NSF agrees to provide financial support to the project to be performed, under the provisions of the grant instrument.
2. The grantee agrees to the performance of the project, to the prudent management of the funds provided by the grant and to the provisions of the grant instrument.

The grantee is free to accept or reject the grant. Normally, action to obtain Federal funds constitutes acceptance of a grant once it is made. However, in some cases NSF may also require written acceptance.

B. CHANGES IN PROJECT OPERATION

Foundation approval must be obtained, in accordance with the award instrument and attachments thereto for major project changes, including those:

1. Affecting the overall intent or scope of the approved project.
2. Involving a change in principal investigator.
3. Involving a change in equipment valued at $1,000 or more.
4. Involving a time extension for completion of grant activities.

Request for such changes should be addressed to the EVIST Program Director by the principal investigator and must be countersigned by the authorized organizational representative.

Within the constraints cited above, chronological changes in expenditures *within* the total time period of the grant do not require Foundation approval.

C. PROJECT TIME EXTENSIONS

It is expected that projects will be completed within the time period specified in the award instrument. Therefore requests for no-cost time extensions should be submitted only under the most unusual of circumstances.

Requests for no-cost extensions must be received at least 45 days prior to the expiration date of the grant, and must be signed by both the principal investigator and the authorized organizational representative. The letter must fully justify the need for the extension, and include a summary of progress to date, an estimate of the unobligated funds remaining, and a description of the plan for their use.

This plan must coincide with the original or amended objectives of the project. The fact that funds remain at the expiration of an award is not justification for an extension.

D. DATA COLLECTION

Data collection activities performed under an NSF grant are the responsibility of the grantee and NSF support of the project does not constitute NSF approval of the survey design, questionnaire content or data collection procedures. The grantee shall not represent to respondents that such data are being collected for or in association with the National Science Foundation or the U.S. Government without specific written approval of such data collection plan or device by the Foundation. However, this requirement is not intended to preclude mention of NSF support of the project in response to an inquiry or acknowledgment of such support in any publication of this data.

E. PUBLICATIONS

1. *Commercial Publication*

Commercial publication or distribution of technical reports and other materials originating from an EVIST-supported project requires prior approval of NSF. As part of this procedure, NSF will review dissemination plans, selection of a publisher, and the proposed publishing agreement. These plans should be discussed several months prior to publisher selection dates.

2. *Acknowledgement of Support and Disclaimer*

An acknowledgement of support by the EVIST Program must be made in connection with the publication of any material originating from an EVIST-supported project, to the effect that: "This project was supported by NSF Grant No. 00 in the NSF Ethics and Values in Science and Technology Program."

Any materials, books, monographs, proceedings of symposia, or similar publications supported by an NSF grant must contain a statement, immediately following the acknowldgement, that contains an expression of the following: "Any opinions, findings, conclusions or recommendations expressed (herein) are those of the author(s) and do not necessarily reflect the views of the National Science Foundation."

3. *Copyrights*

Unless otherwise prohibited by the award instrument, the grantee is free to copyright the reports, data (excluding computer programs), books, publications, films,or other copyrightable materials developed in the course of or under an NSF grant. However, the U.S. Govenment retains a royalty-free, irrevocable, worldwide, nonexclusive license in these materials to reproduce, perform, translate, and otherwise use them, or to authorize others to use them for Government purposes, and to sell them through the National Technical Information Service (NTIS). In some cases it may be necessary to permit the grantee to allow an exclusive license to a publisher for a limited period of time in order to obtain proper distribution.

F. REPORTING REQUIREMENTS

1. *Quarterly Reports*

Brief, informal quarterly progress reports are required from EVIST grantees. They are expected to be relatively brief and informal descriptions of current project status. Quarterly reports will be considered confidential and will not be disseminated outside the Foundation without prior consent by the principal investigator. Copies of published materials and significant interim working papers should be included with these reports. If the grant award has been made jointly with other Federal agencies, copies of significant project materials should be sent to the EVIST Program to be distributed to the other sponsoring organizations, or directly to the organizations themselves.

2. *Final Project Report*

Within 90 days of the expiration of the grant, the grantee institution is required to submit a Final Project Report. Two copies of these documents should be sent to:

National Science Foundation
Division of Grants and Contracts
Post-Award Projects Branch
1800 G Street, N.W.
Washington, D.C. 20550

The Final Project Report (NSF Form 98A) should include a brief (approximately 200 words) description of the project. The description must be self-contained and intelligible to nonscientists. Generally, the grantee should indicate the project's objectives and scope, the techniques or approaches used, and its major findings and implications. The grantee should bear in mind that this Final Project Report may be used, together with the project summary prepared by NSF at the time of the award, to answer inquiries by nonscientists as to the nature and significance of projects which the Foundation supports. (See NSF Important Notice 73, Appendix F).

The grantee is no longer required to submit a separate Final Technical Report and Summary of Completed Project, or to send a copy of the Final Project Report to the cognizant NSF program officer. When the report is received in the Division of Grants and Contracts of NSF, a copy will automatically be forwarded to the program officer. These should be clearly labeled with the grant number and other identifying information as appropriate. Dissemination of reports will be subject to agreement between NSF and the grantee, and, where appropriate, may be set forth in the award instrument.

3. *Financial Report*

A separate fiscal report is no longer required under an NSF grant. The Foundation will use the expenditure data reported in the quarterly Federal Cash Transactions Reports (formerly known as the Quarterly Expenditure Report) in lieu of a final fiscal report.The Foundation's computerized version of the Federal Cash Transactions Report is forwarded to each grantee institution in the month following the close of each calendar quarter. Procedures for reporting are forwarded to grantees at the time an NSF award is made.

Appendix A

SUMMARIES OF SELECTED EVIST PROJECTS

The following summaries describe some of the grants made by the EVIST Program in previous years. Each of these projects has some of the characteristics sought by the program, but none of them should treated as a model. For illustrative purposes, they have been divided into five groups corresponding to the five substantive categories of Section I-B. However, most of them fall into more than one of these categories.

1. The Education and Professional Conduct of Scientists and Engineers

Summer Institute on Ethical Issues for Science and Engineering Faculty (Fiscal Year 1977).

Samuel Gorovitz
Council for Philosophical Studies
College Park, Maryland

Although increasing numbers of scientists and enginers are turning their attention to the ethical issues associated with their work, they frequently lack the training in philosophical ethics that would permit them to participate fully in significant teaching and research projects in the area of science and values. The purpose of this project was to organize a four-week institute during the summer of 1978 to provide forty faculty members from science and engineering departments in colleges and universities throughout the United States with the opportunity to study contemporary problems in moral philosophy, as applied to issues in science and technology, under the guidance of five professional philosophers. Participants were selected on the basis of their intellectual caliber, the seriousness of their interest in philosophical ethics, the prospects for their contribution to the institute, and the prospects that they would put the institute experience to fruitful use upon returning to their home institutions.

Ethical Issues in the Delivery of Health Care Within Detention and Correctional Institutions (Fiscal Year 1978).

Nancy N. Dubler
Montefiore Hospital and Medical Center
New York, New York

Complex ethical and legal problems are encountered in the provision of adequate medical care to inmates of detention and correctional institutions. These include: (1) the nature of the doctor-patient relationship, (2) problems of confidentiality, (3) informed consent to treatment, to experimentation, and to behavior modification and physical intervention programs, and (4) problems in defining adequate treatment.

The objectives of this project are to: (1) sensitize health care professionals, students and trainees to the ethical and social issues inherent in the provision of health sciences to incarcerated persons, and to provide them with the skills needed to identify, articulate and analyze those issues; and (2) develop teaching methods and materials that will permit the extension of this work to other institutions.

The project is being carried out by an interdisciplinary team consisting of an attorney, a philosopher, a psychologist and a community organizer at the Spofford Juvenile Center and the Rikers Island Correctional Complex in New York City. An advisory committee of physicians and former inmates at the Riker Island facility is overseeing the work of the project.

Resource Directory to Courses and Programs on Ethics and Values in Science and Technology (Fiscal Year 1976).

Arthur H,. Livermore
American Association for the Advancement of Science
Washington, D.C.

This project resulted in an inclusive "Resource Directory to Courses and Programs in the Field of Ethics and Values in Science and Technology." The Directory was disseminated to the appropriate academic and professional communities to use in developing new and improving current courses and programs in the field.

To generate the directory, a questionnaire, designed to elicit current course and progam descriptions, teaching and resource materials in use and desired, and the names of faculty, was sent to a wide range of individuals and organizations, including department chairpersons of such relevant fields as philosophy, biology and sociology; deans of schools of engineering; and presidents of two-year colleges.

Bibliography of Engineering Ethics (Fiscal Year 1978).

Robert F. Ladenson
Illinois Institute of Technology
Chicago, Illinois

The primary objective of this project is to stimulate discussion and analysis of ethical questions within the engineering profession. To that end, the Center for the Study of Ethics in the Professions at the Illinois Institute of Technology is compiling, publishing and disseminating a selected, annotated bibliography of engineering ethics targeted to the interests of practicing engineers and teachers of engineering. The bibliography will be a valuable resource for (1) individuals and groups, including local chapters of engineering societies, who are formulating ethical codes or who are seeking to analyze and resolve specific ethical problems and cases; and (2) teachers in college and university engineering department who are planning and teaching courses in the area of technology and society.

The selection and annotation of the material to be incorporated into the bibliography is being monitored by an interdisciplinary faculty group at the Illinois Institute of Technology. Draft copies of the bibliography will be distributed for critical comment to approximately one hundred individuals with interest and expertise in engineering ethics. The final bibliography will be distributed free of charge to professional societies (including local chapters), college and university engineering departments, professional journals of engineering, and selected special interest groups.

2. Obligations and Constraints Associated with Institutions and Organizations

Study of Ethical Problems of Professional Engineers: The BART Case (Fiscal Year 1976).

Robert M. Anderson
Purdue University
West Lafayette, Indiana

In 1972, three engineers from the San Francisco Bay Area Rapid Transit District (BART) were dismissed from their positions because of actions they took arising out of their concern about the potential safety of the BART automatic train control system. Ultimately, a number of diverse organizations became involved in the case, including professional societies, a variety of regulatory committees and commissions, the state legislature and the state courts.

This project produced an in-depth study of the BART engineers' case. A careful survey was made of the printed documents relevant to the case, and interviews were conducted with the principals in order to reconstruct the various stages of the case in a step-by-step fashion. The motives, beliefs, perceptions, and behavior of the individual engineers, the BART organization, the professional and technical societies, and the executive, legislative and judicial branches of government were examined. Three types of materials were developed: (1) a set of case study materials suitable for use in classroom situations; (2) a brief monograph for a general readership; and (3) a series of short articles for publication in scholarly and popular journals.

Workshops on Ethical Issues Associated with the Role of Psychologists in the Criminal Justice System (Fiscal Year 1976)

John Monahan and Fred Strassburger
American Psychological Association
Washington, D.C.

An estimated 1000 psychologists are involved in the U.S. criminal justice system. Their involvement has raised urgent ethical and value questions which psychology, as a scientific discipline has not previously encountered. In this project the American Psychological Association's Task Force on the Role of Psychologists in the Criminal Justice System examined and clarified the ethical issues associated with psychologists' participation in trial advocacy, jury selection, police training, coercive treatment of offenders, and prison research. Task Force workshops (1) refined and expanded the APA Ethical Standards Manual and Casebook to focus more directly on criminal justice work; (2) framed several currently-debated policy issues in the context of general ethical principles; and

(3) suggested the ethically-appropriate contributions that psychologists can make to society's official response to crime.

An Examination of the Ethical Dilemmas of Scientists Participating in the Preparation of Environmental Impact Statements (Fiscal Year 1976).

Gordon Matzke
Oklahomma State University
Stillwater, Oklahoma

The objective of this project was to isolate the ethical dilemmas of scientists working on environmental impact statements by examining case studies involving the participation of academic scientists. The particular cases offered an opportunity to compare situations in which there existed a variety of influences on the manner in which scientists investigated phenomena or reported the results of their investigations.

The interdisciplinary research group carried out a qualitative content analysis of selected impact statements in order to identify value problems. These were then studied through interviews with scientists and other involved parties. The interview data served as the basis for the formulation of conclusions and suggestions regarding the ethical dimensions of the involvement of scientists in environmental impact assessment. The relevance of this information to the development of American science was also considered. Various avenues are being utilized for the dissemination of the research results to relevant public and professional audiences, including scientists who work on these statements.

3. New Development in Science and Technology

Workshop on Ethical Issues in Toxic Substances and Trade Secrecy (Fiscal Year 1976).

Albert J. Fritsch
Technical Information Project, Inc.
Washington, D.C.

The conflict between corporate trade secrecy and the public's right to know poses an ethically difficult and environmentally dangerous problem in the area of toxic substances. Industrial development and use of toxic chemicals which pose hazards of which we have little knowledge has generated concern among consumers, laborers, environmentalists and public interest groups as well as corporate researchers and executives. This project planned and conducted a national workshop for leaders in the field of toxic substances and trade secrecy in an attempt to begin to develop guidelines for effecting some solutions to this problem. The workshop, designed with the active assistance of an appropriately knowledgeable steering committee, included issue-framing plenary sessions and intensive interdisciplinary and transdisciplinary work group sessions. The proceedings of the workshop were published and made widely available.

In addition to identifying and illuminating basic ethical issues, the workshop was intended to stimulate cooperation among adversarial groups in the toxic substances area; point to a number of specific areas of needed research; and provide a bibliography and source of current thinking on this subject for decisionmakers.

Equity Issues in Radioactive Waste Management (Fiscal Year 1977).

Roger Kasperson
Clark University
Worcester, Massachusetts

Decisions as to whose "back yards" will be selected as radioactive waste disposal sites raise ethical questions about the degree to which relatively small numbers of people should bear risks attendant upon the large-scale development of nuclear power. Equity issues are also raised by questions of whether these people should be compensated for their risks, and if so, how. Questions of temporal equity are raised by the radioactive waste management issue, since risks as well as a managerial burden are exported to future generations.

This project is studying the ways in which equity considerations enter into public decisions regarding technological development, focusing on radioative waste management as a problem which poses unique and significant combinations of ethical issues and technologial uncertainties. The project has three phases: (1) to examine and analyze equity issues associated with various technical options for radioactive waste disposal; (2) to develop and test methods to elicit the values and trade-offs of individual citizens on the complex radioactive waste disposal problem; and (3) to monitor developing public policy for radioactive waste management in the United States in the light of the ethical analysis of phase 1. The third, monitoring phase of the project involves a systematic collection of public documents and reports and articles from the mass media.

Social Impacts of the Recombinant DNA Controversy: Documentation of the Responses of the Scientific Community, Government and the Public (Fiscal Years 1976 and 1977).

Charles Weiner
Massachusetts Institute of Technology
Cambridge, Massachusetts

The objective of this project has been to document the value perceptions, motivations, and actions of scientists and other key figures who were involved in the national debate surrounding the recombinant DNA case. As a result of these efforts, a collection of unique source materials for the study of the ethical and value issues associated with the recombinant DNA debate has been assembled and catalogued. The project involved monitoring and recording events as they unfolded; conducting taped interviews with key participants in the controversy; and collecting written documents, including published material and unpublished memoranda, reports, and correspondence.

In view of the interest in the recombinant DNA case, special efforts were made to disseminate the results of the project while the documentation work was in progress. Periodic bulletins describing new rsources as they became available for research were distributed to potential users. Key documents were used to prepare detailed accounts of developments of special interest to serve as bases for scholarly studies. An audiovisual cassette consisting of brief excerpts from the collected taped interviews was made in order to explore the usefulness of such materials for educational purposes.

4. Effects of Changing Ethical and Social Values upon Scientific Priorities and upon the Conduct of Scientific and Technological Activities.

Studies of Scientific Research on Aggression (Fiscal Year 1977).

Willard Gaylin
The Hastings Center
Hastings-on-the-Hudson, New York

The objectives of this project are: (1) to survey the present and envisioned ability of science to understand and control violent or aggressive behavior; (2) to examine in detail three aborted research projects, seeking to determine the political, legal and ethical dynamics that led to their demise; (3) to ask how, and under what conditions, further scientific research on violent or aggressive behavior could or should go forward; and (4) to use these three examples as a data base for broader reflections on ethical issues associated with contemporary scientific research in vulnerable areas on the frontiers of science and technology, where major differences of professional and public opinion exist.

The project is being carried out by an interdisciplinary team of psychiatrists, social scientists, philosophers, legal scholars, and historians who meet at times with key protagonists in each controversy. The aim of these seminars is to illuminate the social, ethical and politial factors involved in the cases under consideration.

Study of Citizen Participation Mechanisms in State Weather Modification Policy (Fiscal Year 1977).

W. Henry Lambright
Syracuse Research Corporation
Syracuse, New York

Demands for and instances of direct citizen participation in science-related policy decisions have increased greatly in recent years. With this increase, which has occurred at all levels of government, have come a number of complicated and difficult problems. These range from general issues of political philosophy to practical matters of effective decisionmaking and administrative management. The active debate that is going on about the subject is, however, being conducted on the basis of very little factual information about the nature and activities of citizens' groups and their impact on decisionmaking processes.

This study provided a preliminry survey and analysis, on a national basis, of citizen participation mechanisms in the context of weather modification. This emergent technology is associated with a limited universe of citizens' advisory committees and citizens' interest groups within which the linkages between organizations and the institutions of government can be studied. The project provided a survey of the full range of existing mechanisms and their policy impact in a science-related social context.

In addition, it served as a basis for designing a subsequent and more comprehensive research project intended to illuminate the role of citizens' organizations in decisionmaking on scientific and technological issues.

International Symposium on Critical Value Issues in Choosing Appropriate Technologies in Developed and Developing Countries (Fiscal Year 1977).

Franklin A. Long
American Academy of Arts and Sciences
Boston, Masachusetts

A number of significant value issues are inherent in high-technology and low-technology models for the developed and developing nations. An international symposium held in June 1978 explored these issues and considered whether there exists the basis for an "appropriate technology" suitable for global implementation. Emphasis was placed on the following aspects of the problem: (1) the impact of societal and professional values on the choice of technology; (2) conflicting value bases in the debate over the role of technology in society; and (3) the potential for convergence between developed nations in planning and directing the future of technology in society.

In order to ensure a balanced, informed consideration of these issues, the symposium was planned and directed by an interdisciplinary steering committee of scientists, engineers, economists and philosophers associated with the United States Pugwash Committee who are familiar with and interested in the international value dimensions of technology and society. Approximately 25 U.S. and 15 non-U.S. specialists participated in the symposium. Commissioned papers and an edited transcript of the symposium proceedings will be published and disseminated widely through the American Academy of Arts and Sciences and the International Pugwash Committee.

5. Decisionmaking Process Involving Science and Technology

Ethical Issues in Regulation and Risk Management: A Study of Federal Science-Related Agencies (Fiscal Year 1977).

Michael S. Baram
Franklin Pierce Law Center
Concord, New Hampshire

New ethical and legal issues are being encountered by federal regulatory agencies in the use of cost-benefit, risk-benefit and other "rational" decisionmaking techniques to manage scientific and technological developments associated with uncertain costs, risks and benefits to individuals and to society. These issues include the valuation of life and health; considerations of equitable distributions of costs, risks and benefits; and Constitutional considerations of equal protection and due process.

The objectives of this project were to identify these new ethical and legal issues and to lay a foundation for studying them in greater depth. These objectives were realized by means of an analysis of relevant laws, policies and practices as determined from documents and from interviews with officials of seven Federal regulatory agencies and with representatives of regulated industries and public interest organizations.

A Study of the Ethical Foundations of Cost-Benefit Analysis Techniques (Fiscal Year 1977).

Allen V. Kneese
University of New Mexico
Albuquerque, New Mexico

The objectives of this project were: (1) to study the theoretical basis of cost-benefit analysis from an ethical perspective; and (2) to use the results to clarify methodological and value issues that are raised when results of cost-benefit analysis are used to evaluate public policies in which scientific data are uncertain and risks of large magnitude are involved. Examples include the regulation of toxic substances and the storage of nuclear wastes. Both issues raise equity questions about the proper way to distribute benefits and costs among different individuals and among larger populations. The second example also raises ethical questions about how the rights and preferences of future generations can be represented adequately.

The project has four main components: (1) a review of the pertinent literature in economics and philosophy; (2) theoretical work to clarify several difficult empirical and value issues; (3) preparation of case studies of public policy issues in science and technology to which cost-benefit assessments have been applied; and (4) preparation of a non-technical monograph aimed at practitioners of cost-benefit analysis, decisionmakers, and citizens involved in the activities of public interest organizations. Early drafts of the monograph materials were circulated for comment to individuals representing the audiences at which they are aimed.

International Conference on Ethical and Value Issues in the Social Assessment of Science (Fiscal Year 1978).

Everett Mendelsohn
Harvard University
Cambridge, Massachusetts

During the past decade, the implicit value assumptions of scientific research in a number of fields, including biology, biomedicine, and the behavioral sciences, have been subject to external social assessment in most of the industrial countries of the world. These assessments, which have been exercised both by the formal actions of governments and by a range of informal citizens' group activities, can be regarded in part as conflicts between the ethical presuppositions of science and those of other societal institutions.

This project used the occasion of a small international conference held in West Germany during May 1978 under the auspices of the International Council on Science Policy Studies to carry out a preliminary, cross-national and comparative study of the value issues implicit in the social assessment of science. Participants were drawn from the United States and from both Western and Eastern Europe. A focal discussion paper was circulated in advance of the conference so that authors of specific conference papers had a common focus for their presentations.

Ethical Issues in Biomedical Decisionmaking (Fiscal Year 1978).

Diana B. Dutton and John Bunker
Stanford University Medical School
Stanford, California

The overall objective of this project is to articulate, explore and analyze some of the normative problems which arise in conjunction with biomedical innovation. The problem areas which provide the framework for this study are: (a) the decisionmaking process itself, (b) issues of informed consent and (c) issues of reparative and distributive justice. The study is focusing on four specific case studies within which these issues have actually arisen: (1) the DES case, (2) the artificial heart program; (3) the swine flu vaccination program and (4) recombinant DNA research.

The project involves two related components: a continuing scholarly research seminar in which the cases are developed and criticized, and a series of workshops for groups of scientists, legislators and citizens who are concerned with the specific case issues or with health consumer issues. The involvement of these groups in the project provides different perspectives on the four cases and explicates the various value issues raised by innovations in biomedical research. These types of information are being fed back into the research seminar to supplement the data for the case studies derived from more conventional scholarly sources. Likewise, the results of the deliberations of the seminar are being communicated to diverse groups by means of the public workshops.

Published materials from the project will include research papers and reports and a book designed for a general readership.

Appendix B

EVIST PROPOSAL REVIEW CRITERIA

Unsolicited proposals to the EVIST Program are normally reviewed by a panel of experts, and in some cases by additional reviewers as well. Panelists and reviewers are asked to apply the appropriate elements of the following list of criteria as part of their evaluation of each proposal. Individual reviewers are selected for their knowledge and experience of EVIST activities and interests. Panelists also weigh program priorities in suggesting appropriate allocations of available funds.

I. *Criteria for the evaluation of the project.*

   A. Its sharpness of focus on issues related to the ethical and social dimensions of science and technology (as opposed, for example, to the study of ethics or values as such.)

   B. The relative social importance of the general area within which it falls, and the significance of the contribution it would make within that area.

   C. Its originality, and the extent to which it would lay the foundation for future work by the project staff or others.

   D. The clarity of formulation of its goals, and the appropriateness of the proposed methods, work plan, and evaluation plan to achieving the specified goals.

   E. The appropriateness of its plan to disseminate its results to as broad a range of concerned individuals and groups as possible.

   F. The extent to which it exhibits familiarity with and will build upon previous work in the same area.

   G. The appropriateness and sufficiency of staff and consultant time and budget to accomplish the work plan.

   H. The extent to which the project, if a collaboration, provides appropriately balanced inputs from all major participants.

   I. The freedom of the project from any explicit or implicit attempt to promulgate a specific dogma or to "market" predetermined ideas or products.

II. *Criteria for evaluation of personnel.*

   A. Evidence that project staff and consultants are qualified to carry out the work plan.

   B. Evidence that the proposed institutional context is appropriate and adequate for the work to be undertaken.

Reviewers and panelists are also asked for suggestions and recommendations to strengthen and improve the proposal.

Appendix C

PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION
Cover Page

FOR CONSIDERATION BY NSF ORGANIZATIONAL UNIT (please specify):

PROGRAM ANNOUNCEMENT/SOLICITATION NO.:	CLOSING DATE (IF ANY):

NAME OF SUBMITTING ORGANIZATION TO WHOM AWARD SHOULD BE MADE (INCLUDE BRANCH/CAMPUS/OTHER COMPONENTS)

ADDRESS OR ORGANIZATION (INCLUDE ZIP CODE)

TITLE OF PROPOSED PROJECT

REQUESTED AMOUNT	PROPOSED DURATION	DESIRED STARTING DATE

PI/PD NAME AND SOCIAL SECURITY NO. (SSN)*	PI/PD PHONE NO.
PI/PD DEPARTMENT	PI/PD ORGANIZATION
ADDITIONAL PI/PD AND SSN*	ADDITIONAL PI/PD AND SSN*
ADDITIONAL PI/PD AND SSN*	ADDITIONAL PI/PD AND SSN*
FOR RENEWAL OR CONTINUING AWARD REQUEST, LIST PREVIOUS AWARD NO.:	

REMARKS: *Submission of social security numbers is voluntary and will not affect the organization's eligibility for an award. However, they are an integral part of the NSF information system and assist in processing the proposal.

PRINCIPAL INVESTIGATOR/ PROJECT DIRECTOR	AUTHORIZED ORGANIZATIONAL REP.	OTHER ENDORSEMENT (optional)
NAME	NAME	NAME
SIGNATURE	SIGNATURE	SIGNATURE
TITLE	TITLE	TITLE
DATE	DATE	DATE

Appendix D

SUMMARY
PROPOSAL BUDGET

ORGANIZATION AND ADDRESS	FOR NSF USE ONLY PROPOSAL NO.	
	DURATION (MONTHS)	
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR	PROPOSED	REVISED

NSF USE	A. SENIOR PERSONNEL (LIST BY NAME; SHOW NUMBERS OF PEOPLE IN BRACKETS; SALARY AMOUNTS MAY BE LISTED ON SEPARATE SCHEDULE) GPM 205.1b	NSF FUNDED MAN MONTHS CAL.	ACAD.	SUMR.	FUNDS REQUESTED BY PROPOSER	FUNDS GRANTED BY NSF (IF DIFFERENT)
	1. P.I./P.D.				$	$
	2. CO P.I./P.D.				$	$
	3. CO P.I./P.D.				$	$
	4. CO P.I./P.D.				$	$
	5. CO P.I./P.D.				$	$
11115	6. ( ) ← SUBTOTALS A1 - A5 →				$	$
	FACULTY AND OTHER SENIOR ASSOCIATES (ATTACH EXTRA SHEET IF NECESSARY)					
	7.				$	$
	8.				$	$
	9.				$	$
	10.				$	$
	11.				$	$
11117	12. ( ) ← SUBTOTALS A7 - A11 →				$	$
	B. OTHER PERSONNEL (LIST NUMBERS IN BRACKETS)					
11141	1. ( ) POSTDOCTORAL ASSOCIATES				$	$
11149	2. ( ) OTHER PROFESSIONALS				$	$
11150	3. ( ) GRADUATE STUDENTS				$	$
11152	4. ( ) UNDERGRADUATE STUDENTS				$	$
11182	5. ( ) SECRETARIAL - CLERICAL				$	$
11183	6. ( ) TECHNICAL, SHOP, OTHER				$	$
	TOTAL SALARIES AND WAGES (A+B)				$	$
11200	C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				$	$
	TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A+B+C)				$	$
	D. EQUIPMENT (LIST ITEMS AND DOLLAR AMOUNTS FOR EACH ITEM)					
23181	TOTAL EQUIPMENT				$	$
	E. MATERIALS AND SUPPLIES					
32630					$	$
	F. DOMESTIC TRAVEL					
42111					$	$
	G. FOREIGN TRAVEL (LIST DESTINATION AND AMOUNT FOR EACH TRIP; GPM 731)					
42112					$	$

SUMMARY PROPOSAL BUDGET

PROPOSAL NO.

52500	**H. PUBLICATION COSTS/PAGE CHARGES**	$	$
62315	**I. COMPUTER (ADPE) SERVICES**	$	$
	J. CONSULTANT SERVICES (IDENTIFY CONSULTANTS BY NAME AND AMOUNT; GPM 516)		
		$	$
	K. PARTICIPANT SUPPORT COSTS, IF ALLOWED BY PROGRAM GUIDE (ITEMIZE) GPM 518		
	1. STIPENDS $		
	2. TRAVEL $		
	3. SUBSISTENCE $		
	4. OTHER - SPECIFY $		
	5. TOTAL PARTICIPANT COSTS (K1 + K2 + K3 + K4)	$	$
	L. ALL OTHER DIRECT COSTS (List items and dollar amounts. Details of subcontracts, including work statements and budget, should be explained in full in proposal.) $ $ $ $		
65001	TOTAL OTHER DIRECT COSTS	$	$
	M. TOTAL DIRECT COSTS (A THROUGH L)	$	$
	N. INDIRECT COSTS (Specify rate(s) and base(s) for on/off campus activity. Where both are involved, identify itemized costs included in on/off campus bases in remarks.)		
74100	TOTAL INDIRECT COSTS	$	$
	O. TOTAL DIRECT AND INDIRECT COSTS (M + N)	$	$
74500	**P. LESS RESIDUAL FUNDS** (If for further support of current project; GPM 252 and 253)	$	$
75000	**Q. AMOUNT OF THIS REQUEST** (O MINUS P)	$	$

REMARKS

NOTE: SIGNATURES REQUIRED ONLY FOR REVISED BUDGET (GPM 233). THIS IS REVISION NO.

SIGNATURE OF PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR	DATE OF SIGNATURE	TYPED OR PRINTED NAME AND TITLE
SIGNATURE OF AUTHORIZED ORGANIZATIONAL REPRESENTATIVE	DATE OF SIGNATURE	TYPED OR PRINTED NAME AND TITLE

FOR NSF USE ONLY

INDIRECT COST RATE VERIFICATION			PROGRAM OFFICER APPROVAL
Date Checked	Date of Rate Sheet	Signature	

Grant Number	Amend No.	Institution	Organization	Fund Acct.	Program	Object	

	Proposal Number	Dur.	Chg.	Award Date	Proposed Amount	Propsd. Dur.	

Appendix E

NATIONAL SCIENCE FOUNDATION
OFFICE OF THE DIRECTOR
Washington, D.C. 20550

Notice No. 57 September 12, 1974

IMPORTANT NOTICE

TO

PRESIDENTS OF UNIVERSITIES AND COLLEGES AND HEADS OF OTHER NSF GRANTEE ORGANIZATIONS

SUBJECT: **Salary Information in Proposals for National Science Foundation Support**

Proposals for NSF support are normally reviewed not only by Foundation staff but also by selected outside reviewers chosen for their knowledge in the subject areas of proposed projects. An integral part of most proposals is a budget which lists by category the various direct and indirect costs of the project for which NSF funds are requested. Among these categories is "Staff Salaries and Wages," including the proposed commitment to the project by named senior personnel of a specified amount of time or effort for which the proposal requests NSF support and the corresponding salary amounts. Unless the proposing organization itemizes these salary amounts in a separate statement, rather than in the budget itself, this information is available to outside reviewers as part of the evaluation process.

The purpose of this Notice is to clarify and expand the salary disclosure option currently described in NSF 73-12, "Grants for Scientific Research." Consequently, effective at once, any academic institution or non-academic organization submitting an unsolicited proposal for support under any NSF program has the option of listing in a *separate schedule* the salary amounts for named senior project personnel which it proposes be reimbursed through an NSF award.

The proposal narrative should continue to indicate the total amount of time or effort which the principal participants plan to devote to the project if NSF agrees to support it, even when only partial or no salary support is being requested from NSF. This may be expressed either as a percentage of time or effort or as the fractional number of man-months of planned participation. The amount of time or effort must be stated explicitly and should be compatible with the other obligations of the named individuals. The separate expression of the number of man-months for which NSF funding is requested is no longer required in the narrative.

Whether or not the option is exercised, the proposal budget should continue to list the names and titles of senior project personnel; the total senior personnel salaries for which NSF funding is requested; and other totals called for in the budget format. If the option is selected, the proposal budget may substitute asterisks for the expressions of both the time or effort for which NSF support is requested and the corresponding salary amounts. In this event, the omitted information is to be furnished in a separate salary schedule, two copies of which should be attached to the original proposal budget only.

This schedule should:

(a) Identify the proposing organization and project title.

(b) Add a legend similar to the following, signed by the official who endorses the proposal: *"It is requested that the following salary information not be released to persons outside the Government."*

(c) Identify, by name, the senior personnel and list the amount or percentage of time or effort and the salary to be charged for each against the NSF award, if approved.

The separate salary schedule will not be made available to reviewers outside the Government.

If the proposal results in a grant, the budget will display on one line the NSF share of the salaries of the (co) principal investigator(s) and, on a separate line, comparable data for all other senior staff (faculty associates in research grants to academic institutions). The stipulated man-months of effort or percentage of time (rounded to the nearest whole month) of those categories of senior personnel which will be charged to the project will also be shown. Proposals resulting in NSF awards, including the budget, will be made available to the public, upon request, pursuant to NSF procedures under the Public Information Act of 1966. However, any separate salary schedule bearing the legend suggested above will be considered confidential and withheld from release to the extent permitted by law.

H. Guyford Stever
Director

Appendix F

NATIONAL SCIENCE FOUNDATION
Office of the Director
Washington, D.C. 20550

Notice No. 73 May 8, 1978

IMPORTANT NOTICE
TO
PRESIDENTS OF UNIVERSITIES AND COLLEGES AND HEADS OF OTHER NATIONAL SCIENCE FOUNDATION GRANTEE ORGANIZATIONS

Subject: **Further Simplification of NSF Reporting Requirements and Enforcement of these Requirements**

For some time, the National Science Foundation has required three reports for all completed grants: a Financial Status Report; a Summary of Completed Project; and a Final Technical Report. In 1977, the Foundation announced a proposed simplification of final fiscal reporting through the use of NSF's computerized Federal Cash Transactions Report which is distributed quarterly for completion by grantees. I am pleased to note that the new reporting system received very favorable comments from grantees. It has just been implemented with the FCTR for the period ending March 31, 1978 and individual Financial Status Report forms are no longer required.

A final technical report has been a long-standing requirement for NSF awards. It contains the scientific information needed by NSF program managers to monitor the results of projects within their areas of responsibility. The Summary of Completed Project was introduced in 1976 as a mechanism for informing the Congress and the general public about the results of NSF-funded research. In addition to being supplied to the Congress and the public in response to requests for information, the abstracts are published annually.

Along with our review of fiscal reporting in 1977, we initiated a review of the data elements required by NSF in the Summary of Completed Project and the final technical report with a view to simplifying these requirements as well. The review indicated that some of the information required in the two reports is identical or similar. Accordingly, we have now redesigned the formats of these reports to combine the common elements into a single form. Copies of the new format and the associated instructions are attached for local reproduction and immediate use. Along with a reduction in duplicate reporting elements, the new form recognizes the fact that some information may not be available at the same time the report is due. The form provides blocks for the principal investigator to check to indicate the submission status of these items.

With this change, the Foundation considers it has reduced its reporting requirements to an absolute minimum consistent with adequate accountability for the use of public funds. We have tried to make the reporting as simple and convenient as possible. Principal Investigators and grantee institutions have an obligation to carry out these requirements in a timely and careful manner. Overdue reports not only raise questions about accountability, but divert resources from productive activities to expensive followup activities.

NSF will require compliance with these simplified reporting requirements; final fiscal information through submission of the FCTR; information on project results through submission of the Final Project Report. In addition to telephone calls, reminder correspondence, and visits by NSF staff to review grantee recordkeeping problems, the Division of Grants and Contracts will monitor overdue report submissions to assure that these two requirements have been fulfilled on prior, expired awards before new awards are made.

Some NSF awards contain requirements for unique reports or other end products. Special provisions for such requirements are included in the award instrument. Nothing in this Notice should be construed as waiving such provisions.

Finally, the Foundation appreciates the comments and suggestions for additional paperwork improvements in response to Important Notice No. 65. Some of these suggestions have been adopted and will be reflected in future editions of NSF program brochures and the Grant Policy Manual.

Richard Atkinson

Richard C. Atkinson
Director

Attachments

NATIONAL SCIENCE FOUNDATION
Washington, D.C. 20550

FINAL PROJECT REPORT
NSF FORM 98A

PLEASE READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING

PART I–PROJECT IDENTIFICATION INFORMATION

1. Institution and Address	**2. NSF Program**	**3. NSF Award Number**
	4. Award Period **From** **To**	**5. Cumulative Award Amount**

6. Project Title

PART II–SUMMARY OF COMPLETED PROJECT *(FOR PUBLIC USE)*

PART III–TECHNICAL INFORMATION *(FOR PROGRAM MANAGEMENT USES)*

1. ITEM *(Check appropriate blocks)*	NONE	ATTACHED	PREVIOUSLY FURNISHED	TO BE FURNISHED SEPARATELY TO PROGRAM	
				Check (√)	Approx. Date
a. Abstracts of Theses					
b. Publication Citations					
c. Data on Scientific Collaborators					
d. Information on Inventions					
e. Technical Description of Project and Results	▨				
f. Other *(specify)*	▨				

2. Principal Investigator/Project Director Name *(Typed)*	3. Principal Investigator/Project Director Signature	4. Date

NSF Form 98A (5-78) Supersedes All Previous Editions

Form Approved OMB No. 99R0013

INSTRUCTIONS FOR FINAL PROJECT REPORT
(NSF FORM 98A)

This report is due within 90 days after the expiration of the award. It should be submitted in two copies to:

National Science Foundation
Division of Grants and Contracts
Post-Award Projects Branch
1800 G Street, N.W.
Washington, D.C. 20550

INSTRUCTIONS FOR PART I

These identifying data items should be the same as on the award documents.

INSTRUCTIONS FOR PART II

The summary (about 200 words) must be self-contained and intelligible to a scientifically literate reader. Without restating the project title, it should begin with a topic sentence stating the project's major thesis. The summary should include, if pertinent to the project being described, the following items:

- The primary objectives and scope of the project.
- The techniques or approaches used only to the degree necessary for comprehension.
- The findings and implications stated as concisely and informatively as possible.

This summary will be published in an annual NSF report. Authors should also be aware that the summary may be used to answer inquiries by nonscientists as to the nature and significance of the research. Scientific jargon and abbreviations should be avoided.

INSTRUCTIONS FOR PART III

Items in Part III may, but need not, be submitted with this Final Project Report. Place a check mark in the appropriate block next to each item to indicate the status of your submission.

a. Self-explanatory.
b. For publications (published and planned) include title, journal or other reference, date, and authors. Provide two copies of any reprints as they become available.
c. Scientific Collaborators: provide a list of co-investigators, research assistants and others associated with the project. Include title or status, e.g. associate professor, graduate student, etc.
d. Briefly describe any inventions which resulted from the project and the status of pending patent applications, if any.
e. Provide a technical summary of the activities and results. The information supplied in proposals for further support, updated as necessary, may be used to fulfill this requirement.
f. Include any additional material, either specifically required in the award instrument (e.g. special technical reports or products such as films, books, studies) or which you consider would be useful to the Foundation.

90%

END

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